Remarks

The Examiner's indication that all of the items listed in the Information Disclosure Statement (hereinafter, "First IDS") that was submitted on May 20, 2003 have been considered, is acknowledged and much appreciated. A Supplemental Information Disclosure Statement was submitted on June 27, 2003 and consideration thereof is respectfully requested. The publication dates associated with item numbers 58 and 59 listed in the First IDS are November 15, 2001. Publication dates associated with item numbers 50 and 51 listed in the First IDS (i.e., the two Quirino *et al.* references mentioned by the Examiner on page 8 of the Office Action, page 8), are not known, although they may (*arguendo*) have been available on the Analytical Chemistry website about a month prior to the publication dates associated with items 59 and 58, respectively.

The specification has been amended in one paragraph merely to reflect that the term "metal organic" sometimes appears in literature as "metalorganic" and refers to a material that has an organic ligand attached to a metal atom or a metalloid atom. This paragraph has further been amended to indicate that the term "metal alkoxide" refers to a member of the "metal organic" or "metalorganic" family, such that it also refers to a material that has an organic ligand attached to a metal or metalloid atom. As such, the term "metal" when used in connection with a "metal organic" or "metalorganic" material or a "metal alkoxide" encompasses metals and metalloids, as is consistent with the list of "metals" also appearing in the paragraph, which includes metals and metalloids. Support for these amendments appear in the original specification and also in Brinker, C. Jeffrey, *et al.*, *Sol-Gel Science, The Physics and Chemistry of Sol-Gel Processing*, page 2 (1990), a copy of which is submitted herewith. No new matter has been added by virtue of these amendments to the specification.

The original application presented Claims 1-26. In Applicants' response to the restriction and election of species requirements, Invention II: Claims 11-18 and a capillary separation channel were elected with traverse. However, in the amendment that accompanied Applicants' response to the restriction requirement, Applicants submitted a substitute specification in which, by an inadvertent clerical error or oversight, a misnumbering of the claims occurred (such that there were two claims numbered "3," and the dependency of some of the claims was accordingly incorrect). But for the misnumbering, the substance of the claims was the same as that of the original claims.

As this misnumbering may have caused some confusion, Applicants have cancelled original Claims 1-26, which may or may not now be considered substitute Claims 1-3, a

misnumbered, second Claim "3," and misnumbered Claims "4-25," and have added new replacement Claims 27-52. Applicants ask that the Examiner indicate on the record that Claims 27-36 and Claims 45-52 are withdrawn from consideration by virtue of the Examiner's imposition of restriction and election of species requirements, Applicants' elections with traverse in response, and the Examiner's action in making final the restriction and election of species requirements, and that Claims 37-44 are currently under consideration also by virtue of such actions on the part of the Examiner and Applicants.

The language of new Claims 37, 39-41, and 43 differs somewhat from that of their former counterparts, original Claims 11, 13-15, and 17, respectively. Each of Claims 37, 39-41, and 43 sets forth the subject matter of the claim in better or clearer form than that of its former counterpart claim, and the dependency of Claim 41 differs from that of its former counterpart claim. Claim 37 recites a method comprising a combination of elements, including introducing a mixture into the column, the mixture comprising a metal organic compound from a metal alkoxide. Each of Claims 37-44 is no narrower than its former counterpart claim, but for the recitation of a metal organic compound from a metal alkoxide in Claim 37, and introduces no new matter.

Misnumbered Claims "10-17," which corresponded to original Claims 11-18, and which have been cancelled herein and replaced with corresponding new Claims 37-44, were rejected under 35 U.S.C. Section 102(a) as allegedly being anticipated by, or in the alternative under 35 U.S.C. Section 103(a) as allegedly being obvious over, each of an article of M. Dulay *et al.*, *Photopolymerized Sol-Gel Monoliths for Capillary Electrochromatography*, Anal. Chem., Vol. 73, No. 16 (2001), 3921-3926 (hereinafter, "Dulay I") and an article of Kato *et al.*, *Photopolymerized Sol-Gel Frits for Packed Columns in Capillary Electrochromatography*, Journal of Chromatography A, 924 (2001), 187-195 (hereinafter, "Kato").

As noted by the Examiner (see Office Action, page 2), Dulay I was published on August 15, 2001. This application was filed on August 13, 2001. It is submitted that Dulay I is inapplicable.

A declaration under 37 C.F.R. 1.132 concerning Kato is submitted herewith. It is submitted that this declaration renders Kato inapplicable to new Claims 37-44.

In view of the foregoing, it is respectfully submitted that new Claims 37-44 define novel and non-obvious subject matter of the subject invention, notwithstanding each of Dulay I and Kato.

Misnumbered Claims "10-17," which corresponded to original Claims 11-18, and which have been cancelled herein and replaced with corresponding new Claims 37-44, were rejected under 35 U.S.C. Section 103(a) as allegedly being unpatentable over an article of Dulay *et al.*, *Preparation and Characterization of Monolithic Porous Capillary Columns Loaded with Chromatographic Particles*, Anal. Chem., Vol. 70, No. 23 (1998), 5103-5107 (hereinafter, "Dulay II") in view of an article of Viklund *et al.*, *"Molded" Macroporous Poly(glycidyl methacrylate-co-trimethylolpropane trimethacrylate) Materials with Fine Controlled Porous Properties: Preparation of Monoliths Using Photoinitiated Polymerization*, Chem. Mater., Vol. 9 (1997), 463-471 (hereinafter, "Viklund") and an article of Woo *et al.*, *Photopolymerization of Methyl Methacrylate with Primary Aryl- and Alkylsilanes*, Bull. Korean Chem. Soc., Vol. 16, No. 11 (1995), 1056-1059 (hereinafter, "Woo").

Claim 37 and Claims 38-44 depending variously therefrom are directed to a method of preparing a monolith in a separation column, comprising providing a separation column, introducing a mixture into the column, the mixture comprising a metal organic compound from a metal alkoxide, and irradiating the mixture to form, via photoinitiated polymerization, a solid, porous matrix as a fritless separation medium in the column.

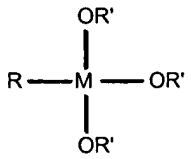
The Examiner's indication that Dulay II fails to teach or suggest irradiating a mixture is appreciated. It is submitted that Dulay II additionally fails to teach or suggest introducing a mixture into a separation column, where the mixture comprises a metal organic compound from a metal alkoxide precursor, and irradiating the mixture.

Viklund also fails to teach or suggest introducing a mixture into a separation column, where the mixture comprises a metal organic compound from a metal alkoxide precursor, and irradiating the mixture. That is, Viklund's polymer results from the photopolymerization of glycidal methacrylate and trimethylolpropane trimethacrylate. These precursors are not metal alkoxides and the resultant polymer is not a metal organic.

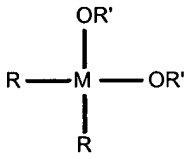
The Examiner alleges that Woo teaches that it is well known to photopolymerize silanes. Applicants strongly disagree. Woo teaches photopolymerization of methylmethacrylate with the aid of an arylsilane or various alkylsilanes to produce poly(methylmethacrylate) having a silyl moiety as an end group. (See Woo's Abstract, Eq. 1, and Scheme 1.) No silane is photopolymerized, such that the Examiner's allegation that Woo teaches that it is well known to photopolymerize silanes is believed to be in error.

As to Woo's polymer precursors, methylmethacrylate is not a metal alkoxide; the arylsilane, phenylsilane, is not a metal alkoxide; and none of the alkylsilanes, benzylsilane, 3-phenoxyphenyl-1-silabutane, 3-naphthyl-1-silabutane, or 3-chlorophenyl-1-silabutane, is a metal alkoxide. For the convenience of the Examiner, structures for exemplary metal alkoxides are set forth below, as are the structures of Woo's phenylsilane, benzylsilane, 3-phenoxyphenyl-1-silabutane, 3-naphthyl-1-silabutane, and 3-chlorophenyl-1-silabutane.

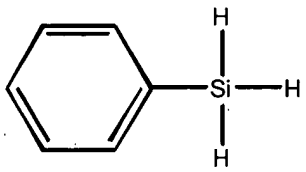
I. Structures for Examples of Metal Alkoxides, $(R_{4-x}) - M - (OR'_x)$, where M is a metal or a metalloid, R and R' are organic groups, and OR' is an alkoxy group.



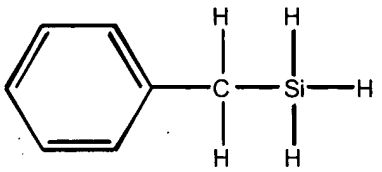
OR



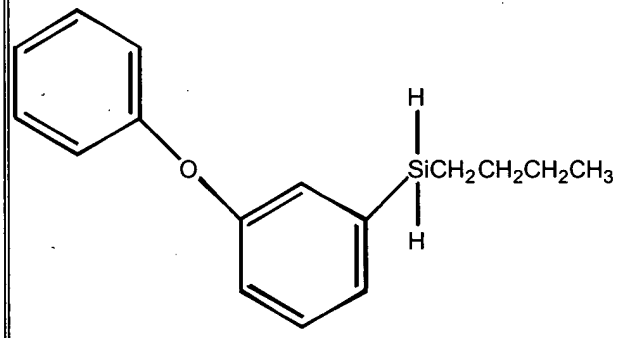
II. Structures for Woo's phenylsilane, benzylsilane, 3-phenoxyphenyl-1-silabutane, 3-naphthyl-1-silabutane, and 3-chlorophenyl-1-silabutane.



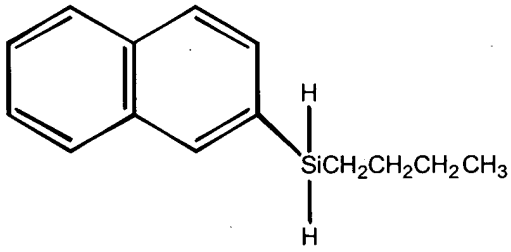
phenylsilane



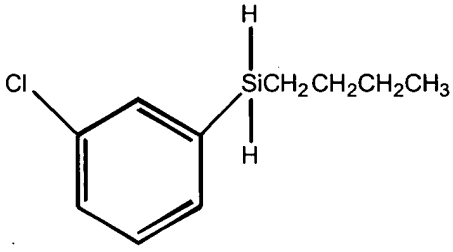
benzylsilane



3-phenoxyphenyl-1-silabutane



3-naphthyl-1-silabutane



3-chlorophenyl-1-silabutane

Woo thus fails to teach or suggest introducing a mixture into a separation column, where the mixture comprises a metal organic compound from a metal alkoxide precursor, and irradiating the mixture.

In view of the foregoing, it is submitted that one of ordinary skill in the art would have had no motivation, at the relevant time, to combine the disparate references of Dulay II, Viklund, and Woo, in the manner hypothesized by the Examiner, and even if one so skilled would have been so motivated, *arguendo*, he or she would not have arrived at the present invention. It is respectfully submitted that Claims 37-44 define novel and non-obvious subject matter of the present invention, notwithstanding Dulay II, Viklund, and Woo, and any hypothetical combination thereof.

Conclusion

Claims 37-44 define novel and non-obvious subject matter of the present invention. Therefore, an early notification of allowability is earnestly solicited.

Respectfully submitted,

K. Alison de Runtz
Reg. No.: 37,119

Parsons Hsue & de Runtz LLP
655 Montgomery Street, Suite 1800
San Francisco, CA 94111
(415) 318-1160
(415) 693-0194 (Fax)